

1    ABSTRACT OF THE DISCLOSURE

2

3        ASICs or like fabrication-preprogrammed hardware provide

4    controlled power and recovery signals to a computing system

5    that is made up of commercial, off-the-shelf components — and

6    that has its own conventional hardware and software fault-pro-

7    tection systems, but these are vulnerable to failure due to

8    external and internal events, bugs, human malice and operator

9    error. The computing system preferably includes processors

10   and programming that are diverse in design and source. The

11   hardware infrastructure uses triple modular redundancy to test

12   itself as well as the computing system, and to remove failed

13   elements — powering up and loading data into spares. The

14   hardware is very simplified in design and programs, so that

15   bugs can be thoroughly rooted out. Communications between the

16   protected system and the hardware are protected by very simple

17   circuits with duplex redundancy.